

Pupils' views on visual timetables and labels in mainstream primary classrooms

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Editorial comment

The use of visual timetables and other visual supports such as labelling materials, places and people with words, symbols and/or photos has been advocated by many to enhance communication and understanding, particularly for children with special educational needs. These are used by staff in mainstream and special settings, and parents and carers also often develop these for use at home. A number of studies have been conducted to explore the value of these from the perspective of the adults who implement them but few studies have sought to obtain the children's views. In this paper, the authors who work at Queen Margaret University, (MR); within the NHS Lothian Speech and Language Therapy Department (MR); within the Additional Support for Learning Service (JB & LJ) in Edinburgh; and at the University of Edinburgh (BLK & KC) report on a study they conducted to gain the views of 109 pupils with (36) and without additional support needs (73) attending two mainstream primary schools. They conclude that

most pupils in both groups found these useful but that they could be more involved in deciding how these were implemented and updated.

Introduction

Staff in mainstream schools aim to meet the needs of an increasingly diverse pupil population with additional support needs (ASN), including autism. In Scotland, where the study took place, ASN is a term used for pupils who are likely to need additional support in school (Scottish Government, 2017). This may be due to disability, health, family circumstances, or social and emotional factors. Adaptations are often made to the physical environment and teaching methods (Ford, Stuart, & Vakil, 2014; Maciver et al., 2019). Some adaptations are *universal* (ie put in place for all pupils in the class). This approach avoids singling out individual pupils and does not involve pre-judging which pupils might benefit. However, although the views of teachers on these adjustments are often obtained, the views of the pupils are less often explored.

Visual supports (eg photos, picture symbols, written words or real objects) are commonly used to enhance communication (Arthur-Kelly et al., 2009; Rutherford, et al., 2020). These often include visual timetables to show the sequence of activities for a specific time period (Spriggs et al., 2017; Watson & DiCarlo, 2016) and environmental labels to show where materials, activities and people are located, (Baxter, Rutherford, & Holmes, 2015). Visual supports have been found to lead to positive outcomes for many children with ASN, including autism, by giving clarity and reducing the demands on memory. Studies have shown that they appear to reduce pupil anxiety,

frustration and distraction; improve task completion; lead to increased interaction with peers; ease transitions; and enhance independence (Dettmer et al., 2000; Foster-Cohen & Mirfin-Veitch, 2017; Johnson et al., 2003; Knight, Sartini, & Spriggs, 2015; Massey & Wheeler, 2000). However, their success depends on the level of staff training and knowledge on how to use these effectively (Wellington & Stackhouse, 2011).

Whilst research to date shows some positive effects of using visual supports, there may be some disadvantages or negative effects. For example, visual support systems are likely to add to the plethora of visual information already displayed in a typical classroom. Previous research has shown that some classroom displays (not visual support systems specifically) can detract from attention to the teacher and negatively affect recall of lessons, particularly for autistic pupils (Fisher, Godwin, & Seltman, 2014; Hanley et al., 2017).

Pupils' views on the use of visual supports in school

There is little research evidence on how pupils with and without ASN view and experience visual supports in their classroom. There are some studies that have explored pupil perspectives, but these have been small scale and have often focused primarily on pupils with ASN (eg Baxter et al., 2015; Foster-Cohen, & Mirfin-Veitch, 2015). An important aspect to investigate is pupil 'ownership' and decision-making in relation to their use. Whilst 'ownership' can simply refer to the extent to which a classroom has been individualised to create a pupil-centred environment for the specific pupils in a class (Barrett et al., 2017), in this context it also refers to the extent to which the pupils feel that they have been *involved* in such

individualisation. Under Article 12 of the UNCRC, pupils have a right to be heard and involved in decisions that affect them (Scottish Government, 2020; UN Committee on the Rights of the Child, 2009). However, there are few, if any, studies to date which evaluate pupil decision-making in relation to visual supports. It is therefore unclear whether pupils feel they are involved in decisions about how and where visual supports are used in the classroom, and whether involvement in such decision-making is important to them.

This study: The Edinburgh Visual Support Project

In Scotland, there is a presumption that all pupils will attend mainstream school, wherever possible, and so most children with ASN attend their local school or nursery. Additional Special Needs include those arising from autism, intellectual disability, and specific learning difficulty, and also those pupils where English is an additional language (EAL). Within Scottish schools 26.6% of pupils are reported to have ASN, of whom 11% have EAL (Scottish Government, 2019).

There has been universal, visual support training and accreditation from the City of Edinburgh Additional Support for Learning Service open to all nursery and primary schools in Edinburgh for the last five years and visual supports are commonly used in around 90 of these settings. All staff in the school attend the training and are given symbol resource starter packs created by the Additional Support for Learning Service using Boardmaker symbols. Schools then implement visual timetables and other visual supports (see *Appendix 1* for examples), so there is consistency in the symbols used across different schools. A visual support co-ordinator is identified for each

school, who takes the lead in the maintenance and future development of visual support in the school.

Aims of the study

This study used self-report questionnaires and focus groups to obtain the perspectives of pupils aged 6 to 12 years on the use of visual supports in their mainstream classroom, addressing three research questions:

1. How frequently do pupils make use of the visual supports in the classroom (visual timetables and environmental labels)?
2. Does the frequency of using visual supports differ according to pupil age, gender, presence of EAL, or other types of ASN?
3. What are the pupils' views on visual supports, in relation to: pupil knowledge of symbols; benefits and challenges of using visual supports; pupil ownership?

Methods and participants

Data were obtained from questionnaires completed by the pupils and from five focus groups. The Local Authority and the ethics committee of the School of Education and Sport, University of Edinburgh gave ethical approval prior to commencement of the study. All data were collected by BLK, who was not involved in the development or delivery of the Visual Support Project. Information and consent forms were distributed to parents/carers via the headteacher in each school. Pupil consent was confirmed verbally by the researcher prior to questionnaire completion and again prior to the focus groups.

Questionnaire completion

A questionnaire was completed by 109 pupils (61 female; 48 male) aged 6 – 12 years from two mainstream primary schools (School A: n = 62; and School B: n = 47) (see *Table 1*). Thirty six pupils had ASN, 24 of these with EAL and 12 with other types of ASN, including one pupil also in the EAL group. This ASN information was based on teacher report. Schools confirmed that there were autistic pupils in the sample, but detailed ASN information was not gathered, so exact numbers are not known. Both schools were located in an urban area and both had implemented the Visual Support Project for about 12 months, with the school's visual support co-ordinators reporting good fidelity of implementation. The questionnaires took about 10-12 minutes to complete in class, and this was done as a whole class activity with the researcher reading out the questions. Physical examples of each type of visual support referred to were shown for each question. Teachers were asked whether 1:1 or small group data collection was more appropriate for some pupils, but this was not felt necessary. The questionnaire (see Appendix 2) explored the pupils' use of and views on visual timetables and environmental labels within their class and the school. There were questions on: their use of timetables and labels in the previous week (a 5-point scale from 'never' to 'a lot'); their knowledge of the symbols; and how much 'ownership' they felt they had of the system in terms of who updated the timetable and who decided where to put the environmental labels in the class (the pupils, the teacher, or both). Response choices were given in words with illustrations to aid their understanding.

Focus groups

Focus groups were chosen rather than interviews to avoid the children feeling under pressure and to encourage them to develop their ideas collectively. These were held after the questionnaires and each lasted between 20-30 minutes. Fourteen pupils from the two schools took part in one of five focus groups. Each group had between two and four pupils from the same class who were drawn from the questionnaire sample. One of the focus groups had a pupil with ASN within it and additional communication support was provided to enable their participation. Prior to each group, pupils were given information about what to expect and were reminded that they could leave the group and return to class at any time either by verbal request or by touching a red symbol placed in front of them. Focus groups took place in a quiet room in the school, and were filmed for later analysis. The focus groups discussed the visual timetables, exploring: how and when they were used; their benefits and drawbacks; and the pupils' sense of ownership and decision-making around their use. A set of semi-structured questions was used consistently across all groups, but with flexibility to allow exploration of the specific views of each group. Questions included: *'Are there good/ bad things about the timetable?'* and *'When do you use them most?'*.

Data analysis

All the pupils responded to all the questions on the questionnaire. Descriptive statistics were used to explore how frequently pupils reported using the visual timetables and environmental labels. Correlation analysis and t-tests were used to explore whether the frequency of visual support use differed on the basis of pupil age, gender, presence of EAL, presence of other types

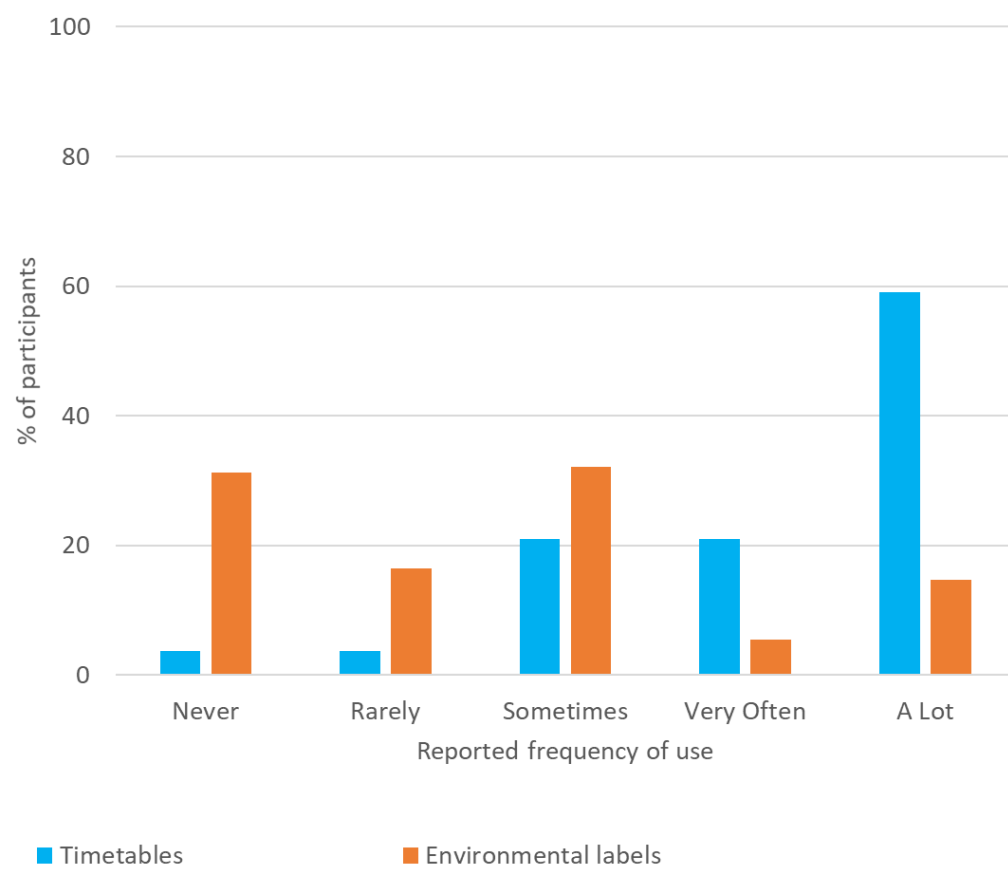
of ASN, or the school attended. Focus group recordings were transcribed by the researcher and reviewed several times for familiarisation. As responses to questions tended to be relatively brief, simple content analysis was used to group their responses according to the topics explored.

Findings

Questionnaire responses (n=109)

As can be seen in Figure 1, the pupils reported using visual timetables much more often than environmental labels during the previous week, with 73% of pupils having used visual timetables ‘very often’ or ‘a lot’, but only 20% reporting they used environmental labels as frequently. However, 52% of pupils said they used environmental labels at least ‘sometimes’.

Figure 1: Pupil-reported frequency of use of visual timetables and environmental labels during the previous week



In terms of how other variables related to the use of timetables and visual labels (see *Table 1*), correlations and t-tests suggested that the frequency of visual timetable use did not vary significantly on the basis of: age, gender, EAL or other ASN. However, pupils at School A reported using the timetables significantly more often than pupils at School B, with 89% in School A and 53% in School B having used the timetables ‘*very often*’ or ‘*a lot*’. The frequency of environmental label use did not vary significantly on the basis of gender, EAL or other ASN or the school attended. However, the older pupils said they used environmental labels significantly less often than the younger pupils. In terms of their knowledge of the visual systems, pupils were asked whether they would know what the symbols meant if the words did not also appear (on a scale of 1 = none, to 5 = all). Over two thirds (68%) of the pupils said they would know what ‘most’ or ‘all’ of the symbols meant without the words, suggesting they had good knowledge of the symbols.

Table 1: Frequency of visual timetable and environmental label use across participant groups (n = 109)

Pupil group	N	Timetable use Mean (SD)	Environmental Label Use Mean (SD)
Pupils with health/disability-related ASN	12	3.83 (1.53)	2.92 (1.68)
Pupils without health/disability-related ASN	97	4.21 (1.03)	2.52 (1.33)
Pupils with EAL	24	4.29 (1.04)	2.46 (1.29)
Pupils without EAL	85	4.13 (1.11)	2.59 (1.40)
Female	61	4.03 (1.05)	2.43 (1.28)
Male	48	4.33 (1.14)	2.73 (1.47)
School A	62	4.48 (0.74) ^a	2.73 (1.15)
School B	47	3.74 (1.33) ^a	2.34 (1.61)

^a $p < .001$

Note: Participants rated their frequency of timetable and label use from 1 = 'never' to 5 = 'a lot'

Focus group responses

In the focus groups, pupils were asked when they used visual timetables in the class. They said they used these at points of transition in the morning, after break and after lunch, with the frequency sometimes reducing through the day. Comments made included:

"I just look at it in the morning, then I know what we are doing and then I don't look again." (Primary 4 pupil, School B).

"I look at it in the morning about 5 times and after break I look at it about 3 times, then at lunch I look at it about 2 times." (Primary 4 pupil, School B).

In terms of using words and symbols, pupils found this helpful. One pupil said,

"If you have art you can tell it is art because you've got the crayons and the crayon box, so that's what I'd say I find valuable." (Primary 6 pupil, School A).

They felt the visual timetable helped to know when things were happening and to ease transitions. Two comments made were:

"It tells you when things are meant to be done." (Primary 2 pupil, School A).

"I think because like people can just get their jotters out for the next thing like, they've finished what we've just been doing but we wouldn't be able to do that if we didn't have a timetable." (Primary 6 pupil, School A).

At least one pupil in each group said they would be more confused without a timetable. They also felt that without it, they would be less independent.

"We'd have to constantly ask the teacher and ask what we'd be doing."

(Primary 6 pupil, School A).

Children said that the timetables were helpful for many people (eg teachers, all pupils, specific pupils in their class, new pupils, pupils with EAL and those with other types of ASN):

"It helps everybody but there's a boy in our class and he's in a language class and he needs a little bit more help and he uses it more." (Primary 4 pupil, School A).

The pupils' concerns about the timetable centred more on *how* the timetable was used, rather than the presence of the timetable per se. These concerns related to poor visibility, lack of updating, and distraction. In relation to visibility, some pupils said that their timetable was not easy to see because of where it had been placed in the class:

"Some people have to look underneath the smartboard to see [the timetable]." (Primary 4 pupil, School B).

Pupils also commented that teachers should consider whether pupils at the back of the class could see the timetable. Another common concern was the timetable not being frequently updated:

"When people don't move it, I get really confused." (Primary 4 pupil, School B).

“Sometimes I look at it, sometimes I don’t, because some people don’t...our teacher doesn’t...really change it, and I don’t know what’s happening.” (Primary 4 pupil, School B).

Older pupils were less concerned about the timetable not being updated, however.

Two out of the five focus groups mentioned the issue of distraction. This was not in relation to the presence of the timetable, but due to pupils’ interaction with the timetable, particularly when pupils updated the timetable during lessons:

“It’s actually usually [during] lessons and they ask the teacher ‘Can I change it?’. When she says, ‘Yes’ I get distracted from my work.” (Primary 4 pupil, School B).

One pupil suggested the need for the teacher to create clear information about who was to update the timetable and when, to prevent the distraction caused by pupils changing it during lessons.

Pupil ownership of, and decision-making about the visual timetable and labels

In the questionnaire, pupils were asked whether pupils, teachers, or both updated the visual timetable. Almost three quarters (73%) of the pupils said that it was the pupils who updated the timetable, 1% said that it was the teachers, and 26% said that both pupils and teachers did so. Pupils were also asked who decided where the visual labels were placed in the classroom. Almost all (91%) of the pupils said it was the teachers who made these decisions, 4% said that it was the pupils, and 5% said that both pupils and teachers did so. The focus group discussions supported this finding, with pupils describing a high degree of involvement in changing the timetable during the day. Some classes had a ‘timetable monitor’ and other classes had a less formal approach.

However, no focus group said that the pupils had been involved in the decision about where to place the timetable in the classroom. Only one group discussed their opinions on this, and voiced a desire to be involved in the decision making:

“Then we feel like we helped make the class a little bit.” (Primary 4 pupil, School B).

Although focus groups did not specifically discuss the environmental labels in the classroom, one group expressed a desire to have greater involvement in decision-making about where these were placed.

Discussion

This study aimed to explore the pupils’ use of, and views on, the visual supports implemented in their schools. Findings from pupils with and without ASN, showed that almost all pupils used the visual timetables a great deal, but made less use of the environmental labels. The finding that visual timetables were used as frequently by pupils without ASN as those with, emphasises that some of the support put in place primarily for pupils with ASN, may in fact be of benefit to pupils more broadly. This fits well within inclusive pedagogy, an approach which aims to reduce the marginalisation that results from treating pupils differently from each other, doing so by making learning opportunities and approaches routinely available for all pupils (Florian, 2015).

In contrast, the environmental labels were used less often. This is unsurprising as once pupils have learnt where materials in the classroom are stored and activities are located, they will no longer need to rely on labels to find them, whereas timetables change daily and so need to be

referred to more frequently. Use of the environmental labels also decreased with age, something also reported by Foster-Cohen and Mirfin-Veitch (2017) in relation to visual support. It is worth noting, though, that just over half of all pupils reported using these labels at least 'sometimes', suggesting there was still a sizeable number of pupils who found them beneficial.

Pupils reported a number of benefits, including greater independence, less reliance on the teacher at transitions, and greater predictability in the school day. These findings are similar to those previously reported by parents and teachers in relation to visual supports (Knight et al., 2015), but extends this previous work by showing that such benefits are also reported by pupils, including those who do not have ASN. The drawbacks of visual supports reported by the pupils centred not on the presence of visual supports, but on how teachers used it in class. These centred around poor timetable visibility, lack of updating, and distraction when timetables were updated during lessons. This emphasises the value of teacher training in relation to the use of visual supports (Wellington & Stackhouse, 2011), and also of teachers checking in with pupils to gain feedback on how the system is working.

It was notable that the pupils in School A reported using the timetables significantly more frequently than the pupils in School B, although the frequency of environmental label use did not differ. The reason for this difference is unclear, but in the focus groups some of the pupils in School B said the timetable was not always updated, something which may have contributed to less frequent use. Pupils in both schools also discussed ways to improve the visibility of the timetable, but this appeared to be somewhat more of a concern for some pupils in School B.

In terms of pupil 'ownership' and involvement in decisions around the use of the visual supports, the findings suggest that there is scope for teachers to develop this further. Although pupils were given *responsibility* for the timetables (over 70% reported that pupils updated the timetable), they had limited opportunities for *decision-making*, with more than 90% of pupils reporting that the teacher alone decided where environmental labels were placed in the classroom and no focus group reporting that the pupils had been involved in the decision about where to place the timetable in the classroom. Increased 'ownership' of classrooms more broadly has been associated with progress in children's learning (Barrett et al., 2017). Of course, it may be impractical to consult all pupils about all classroom design decisions, but it is possible that doing so in relation to visual support may allow it to be implemented in more beneficial ways. It may also be valuable to consider whether there are particular groups of pupils who should be consulted first and foremost (eg autistic pupils and those with communication difficulties).

Concluding comments

Inevitably, there were limitations to this study. The focus groups involved a relatively small number of pupils, so it was not possible to further explore whether pupil views on visual supports varied across those with/without EAL and with/without other types of ASN. Furthermore, although the questionnaire sample was relatively large, it was drawn from only two schools, and findings may not generalise to other educational settings. Whilst data were gathered on ASNs broadly, there was no information on specific pupil diagnoses such as autism. Gathering this in future studies should further knowledge about how different groups of pupils use visual supports

in the classroom. Overall, this study highlights the value of visual timetables and the labelling of materials to a lesser extent, for all pupils, including those with and those without ASN. Their effective use could be further developed by listening to pupil concerns around how the system is implemented and exploring with them whether they wish to have greater involvement in decision-making.

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Appendix 1: Examples of a visual timetable and visual labels





Appendix 2: Visual Support Questionnaire

Name: _____ Boy / Girl Age: _____

Please circle your answer.

1. In the last week, how often have you used the visual timetables?



NEVER

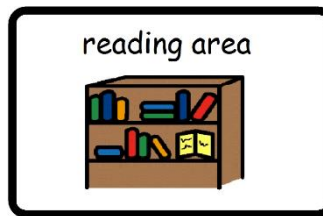


SOMETIMES



A LOT

2. In the last week, how often have you used the environmental labels?



NEVER



SOMETIMES



A LOT

3. Do you know what the pictures on the timetable mean without the words?



NONE OF THEM



SOME OF THEM

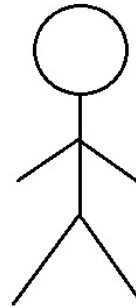


ALL OF THEM

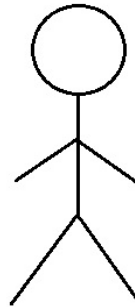
4. Please circle who changes or moves the pictures on the timetable most?



Pupils



Both

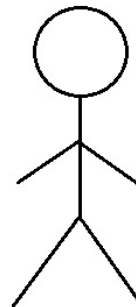


Teacher

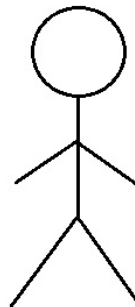
5. Please circle who decides what to put a picture label on in the class?



Pupils



Both



Teacher